What is claimed is:

1. Isolated Apo-2DcR polypeptide having at least about 80% amino acid sequence identity with native sequence Apo-2DcR polypeptide comprising amino acid residues 1 to 259 of Fig. 1A (SEQ ID NO:1).

2. The Apo-2DcR polypeptide of claim 1 wherein said Apo-2DcR polypeptide has at least about 90% amino acid sequence identity.

3. The Apo-2DcR polypeptide of claim 2 wherein said Apo-2DcR polypeptide has at least about 95% amino acid sequence identity.

4. Isolated native sequence Apo-2DcR polypeptide comprising amino acid residues 1 to 259 of Fig. 1A (SEQ ID NO:1).

5. Isolated extracellular domain sequence of Apo-2DcR polypeptide comprising amino acid residues 1 to 161 of Fig. 1A (SEQ ID NO:1).

6. The extracellular domain sequence of claim 5 comprising amino acid residues 1 to 165 of Fig. 1A (SEQ ID NO:1).

7. The extracellular domain sequence of claim 5 comprising amino acid residues 1 to 236 of Fig. 1A (SEQ ID NO:1).

8. Isolated extracellular domain sequence of Apo-2DcR polypeptide comprising amino acid residues 1 to X, wherein X is any one of amino acid residues 161 to 236 of Figure 1A (SEQ ID NO:1).

9. Isolated native sequence Apo-2DcR polypeptide comprising amino acid residues -40 to 259 of Fig. 1B (SEQ ID NO:3).

10. A chimeric molecule comprising the Apo-2DcR polypeptide of claim 1 or the extracellular domain sequence of claim 5 fused to a heterologous amino acid sequence.

11. The chimeric molecule of claim 10 wherein said heterologous

amino acid sequence is an epitope tag sequence.

12. The chimeric molecule of claim 10 wherein said heterologous amino acid sequence is an immunoglobulin sequence.

13. The chimeric molecule of claim 12 wherein said immunoglobulin sequence is an IgG.

14. The chimeric molecule of claim 12 wherein said extracellular domain sequence comprises amino acid residues 1 to 165 of Fig. 1A (SEQ ID NO:1).

15. An antibody which binds to the Apo-2DcR polypeptide of claim 1 or the extracellular domain sequence of claim 5.

16. The antibody of claim 15 wherein said antibody is a monoclonal antibody.

17. The antibody of claim 15 which comprises a blocking antibody.

18. The antibody of claim 15 which comprises an antibody that, in addition to binding Apo-2DcR polypeptide, binds to another Apo-2 ligand receptor.

19. The antibody of claim 15 which comprises a chimeric antibody.

20. The antibody of claim 15 which comprises a human antibody.

21. The antibody of claim 15 which comprises an IgG antibody.

22. The antibody of claim 16 having the biological characteristics of the 4G3.9.9 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____.

23. The antibody of claim 16 having the biological characteristics

of the 6D10.9.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____.

24. The antibody of claim 16 having the biological characteristics of the 1C5.24.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____.

25. The antibody of claim 16 wherein the antibody binds to the same epitope as the epitope to which the 4G3.9.9 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____ binds.

26. The antibody of claim 16 wherein the antibody binds to the same epitope as the epitope to which the 6D10.9.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____ binds.

27. The antibody of claim 16 wherein the antibody binds to the same epitope as the epitope to which the 1C5.24.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____ binds.

28. A hybridoma cell line which produces the antibody of claim 16.

29. The hybridoma cell line deposited as ATCC accession number ____.

30. The hybridoma cell line deposited as ATCC accession number ____.

31. The hybridoma cell line deposited as ATCC accession number ____.

32. The 4G3.9.9 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____.

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33. The 6D10.9.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____.

34. The 1C5.24.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number _____.

35. Isolated nucleic acid comprising a nucleotide sequence encoding the Apo-2DcR polypeptide of claim 1 or the extracellular domain sequence of claim 5.

36. The nucleic acid of claim 35 wherein said nucleotide sequence encodes native sequence Apo-2DcR polypeptide comprising amino acid residues 1 to 259 of Fig. 1A (SEQ ID NO:1).

37. The nucleic acid of claim 36 wherein said nucleotide sequence comprises nucleotides 193 to 969 of Fig. 1A (SEQ ID NO:2).

38. A vector comprising the nucleic acid of claim 35.

39. The vector of claim 38 operably linked to control sequences recognized by a host cell transformed with the vector.

40. A host cell comprising the vector of claim 38.

41. The host cell of claim 40 which comprises a CHO cell.

42. The host cell of claim 40 which comprises a yeast cell.

43. The host cell of claim 40 which comprises an *E. coli*.

44. A process of using a nucleic acid molecule encoding Apo-2DcR polypeptide to effect production of Apo-2DcR polypeptide comprising culturing the host cell of claim 40.

45. A non-human, transgenic animal which contains cells that

express nucleic acid encoding Apo-2DcR polypeptide.

46. The animal of claim 45 which is a mouse or rat.

47. A non-human, knockout animal which contains cells having an altered gene encoding Apo-2DcR polypeptide.

48. The animal of claim 47 which is a mouse or rat.

49. A composition comprising the Apo-2DcR of claim 1 or claim 5 and a carrier.

50. A composition comprising the Apo-2DcR antibody of claim 15 and a carrier.

51. An article of manufacture, comprising a container and a composition contained within said container, wherein the composition includes Apo-2DcR polypeptide or Apo-2DcR antibodies.

52. The article of manufacture of claim 51 further comprising instructions for using the Apo-2DcR polypeptide or Apo-2DcR antibodies *in vivo* or *ex vivo*.

53. A method of modulating apoptosis in mammalian cells comprising exposing said cells to Apo-2DcR polypeptide.

54. The method of claim 53 wherein said cells are further exposed to Apo-2 ligand.

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